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54 Sustained-release pharmaceutical preparation.

57 A sustained-release pharmaceutical preparation comprising an admixture of uncoated and/or single walled coated drug, and multi-units of microparticles of a multi-walled coated drug. The microparticle structure preferably has a core drug, an inner wall microencapsular enteric coating, such as a polymethacrylic acid/acrylic acid copolymer or cellulose acetate phthalate, a solid acid such as citric acid, adipic acid, or an acidic ion exchange resin layered onto or included in the enteric layer, and an outer wall microencapsulated control coating, such as a polymethacrylic acid ester copolymer or ethyl cellulose. The multi-walled coated drug has a delayed, gradual, long-term release which takes place in the intestines while the uncoated and/or single walled coated drug has immediate therapeutic properties upon dissolution in the stomach. The enteric coating and control coating may be applied to core drug granules by a coacervation, spray coating or other process. The acid may be a separate layer applied by a spray coating or other process.

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	EP-A-0 212 745 (THE PROCTER AND GAMBLE CO.) * The whole document * - - - -	1-4	A 61 K 9/54
Y		5-20	
Y	DE-A-3 233 764 (W. GABLER) * Page 5, lines 1-4; page 6, line 7 - page 8, line 12; pages 15-17, example 3; claims 1-4,6,10-12 * - - - -	5,6,8,9, 10-16	
Y	EP-A-0 212 747 (THE PROCTER AND GAMBLE CO.) * The whole document * - - - -	17-20	
Y	EP-A-0 080 341 (A/S ALFRED BENZON) * Page 2, line 27 - page 3, line 4; pages 18,19, example 1; claims 1,21,26 * - - - -	7,15	
A	EP-A-0 239 361 (KINAFORM TECHNOLOGY, INC.) * Claim 1 * - - - -	1-4	
P,A	EP-A-0 338 383 (SCHWARZ PHARMA AG) - - - - -		
The present search report has been drawn up for all claims			
Place of search		Date of completion of search	Examiner
The Hague		13 February 91	BOULOIS D.J.-M.
CATEGORY OF CITED DOCUMENTS X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention		E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons &: member of the same patent family, corresponding document	

TECHNICAL FIELDS
SEARCHED (Int. Cl.5)

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